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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,777	11/10/2003	Cedomila Ristic-Lehmann	FA/263	7870

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GORE ENTERPRISE HOLDINGS, INC.  
551 PAPER MILL ROAD  
P. O. BOX 9206  
NEWARK, DE 19714-9206

EXAMINER

HU, HENRY S

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/706,777

Applicant(s)

RISTIC-LEHMANN ET AL.

Examiner

Henry S. Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment of August 24, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12, 14 and 16-98 is/are pending in the application.
- 4a) Of the above claim(s) 18-98 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-12, 14 and 16-98 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is in response to faxed Amendment filed on August 24, 2005. Claims 1-3 and 17 were amended, while Claims 13 and 15 were cancelled. To be more specific, **Claim 1** was amended to add the limitation of “**the material is a powder or a putty**” from dependent Claims 13 and 15; **Claims 1-3** were also amended to correct the improper language including “**298.5 K and 101.3 kPa**” for atmospheric conditions and “**milliwatt per meter Kelvin**” for unit of mW/m K as pointed out in the claim objection; while **Claim 17** was amended cosmetically.

With respect to specification objection, the Applicants are reminded to check the two numbers in **page 19** (a typo error) at line 2 and page 5 at line 19. In view of above amendment, the examiner thereby withdraws claim objections, while specification objection is sustained. In summary, **Claims 1-12, 14 and 16-98 are pending now, while non-elected Claims 18-98 (with traverse) are still withdrawn from consideration by the examiner.** An action follows.

### *Response to Argument*

2. Applicant's argument filed on August 24, 2005 has been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows: In view of the Applicants' argument on pages 11-13 of Remarks, 102 and 103 rejections involving

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the Stepanian reference are both sustained even “the material is a powder or a putty” is incorporated into parent Claim 1.

### *Specification*

3. The disclosure is objected to because of the following informalities:

On **page 5** at line 19 and on **page 19** at line 2 may be throughout the specification, recitation for **Kelvin temperatures of “298.15” and “298.5” for measuring thermal conductivity are not the same temperatures**. It may have a typographical error.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. *The limitation of parent Claim 1 in present invention relates to a material comprising (A) aerogel particles and (B) a polytetrafluoroethylene (PTFE) binder, wherein the material is a powder or a putty and the material has a thermal conductivity of less than or equal to 25 milliwatt per meter Kelvin (mW/m K) at atmospheric conditions (298.5 K and 101.3 kPa). See other limitations of dependent Claims 2-12, 14 and 16-17.*

7. Claims 1-12, 14 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Stepanian et al. (USPG-PUB 2002/0094426 A1) for the reasons set forth in **paragraphs 6-8 of office action dated 1-7-2005 as well as the discussion below.**

8. Claims 1-12, 14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank et al. (US 5,786,059) in view of Stepanian et al. (USPG-PUB 2002/0094426 A) for the reasons set forth in **paragraphs 10-12 of office action dated 1-7-2005 as well as the discussion below.**

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9. **Applicants:** Applicants have claimed in parent **Claim 1** an unexpected way of obtaining a material in the form as a powder or a putty, it comprises two major components as: (A) aerogel particles and (B) a **polytetrafluoroethylene (PTFE)** as a binder. Such a material has a specific thermal conductivity of less than or equal to 25 milliwatt per meter Kelvin (mW/m K) at atmospheric conditions (298.5 K and 101.3 kPa).

With respect to 102 and 103 rejections both involved with the same Stepanian reference, the Applicants allege that Stepanian's aerogel is only in the form of monolith rather than powder so that the product will not results in significant shedding (after learning the statement from **Ryu et al. of US Patent No. 6,068,882**) (see paragraphs 0009-0010) (also see page 12 of Remarks).

10. The Applicants further allege that Stepanian's composite composition would necessarily depend on the additional use of a metal (copper wire) mesh to obtain malleability or intrinsic conformability (see paragraph 0015, last six lines). It is clearly distinguishable from the material of instant application.

The Applicants furthermore allege that the primary reference Frank does not overcome the shortcomings of Stepanian (page 13 of Remarks). Therefore, the above-mentioned prior art, in combination or alone, fails to teach or suggest such a specific material having such a low thermal conductivity of parent Claim 1.

11. **Examiner:** As discussed in the earlier office action for two parent **Claim 1**, the Stepanian reference has already disclosed a process for making aerogel composite materials comprising two different phases, one is a low-density “aerogel matrix” and the second is a reinforcing phase, wherein the reinforcing phase consists primarily of a lofty fibrous material such as polytetrafluoroethylene (PTFE). Such a composite material is found to carry a thermal conductivity around 12-15 mW/m K, which is clearly overlapping the claimed value.

With respect to the key argument on “Stepanian’s aerogel is only in the form of monolith rather than powder”, both forms (powder and monolith) of aerogel may have already used (at least not being ruled out) in building Stepanian’s composite so that Stepanian is able to make such a conclusion in paragraph 0010 and 0011 for obtaining exceptionally low thermal conductivity. In the case of powdery aerogel is being used by Stepanian, a thermal conductivity higher than 12-15 mW/m K may be resulted as known in the art from the effect of shape. However, it may be still under the claimed 25 mW/m K.

12. With respect to other key argument on “**metal mesh**” being required in Stepanian’s composite material in the purpose for better malleability or intrinsic conformability, it is found that parent Claim 1 is using the open language of “comprising”. Therefore, both rejections depending on the Stepanian reference are proper according to MPEP.

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With respect to the newly added limitation of “the material is a powder or a putty” of parent Claim 1, Stépanian’s composite material when containing a metal mesh may be still able to be in the form of powder in the case of using a micro-sized mesh. It is noted that Claim 1 does not specify the particle size of powder.

***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

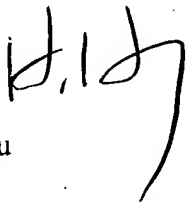


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14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Henry S. Hu

Patent Examiner, art unit 1713, USPTO

October 24, 2005

  
DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700